

# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
 	Flammable material; avoid heat and sources of ignition. Harmful compound, minimize exposure. Irritating to skin, eyes, and the respiratory system.	   

## Section I. Chemical Product and Company Identification

Chemical Name	<b>2,2,4-Trimethylpentane</b>		
Catalog Number	T0481	Supplier	TCl America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	Isooctane		
Chemical Formula	(CH <sub>3</sub> ) <sub>2</sub> CHCH <sub>2</sub> C(CH <sub>3</sub> ) <sub>3</sub>		
CAS Number	540-84-1	In case of Emergency Call	<b>Chemtrec®</b> <b>(800) 424-9300 (U.S.)</b> <b>(703) 527-3887 (International)</b>

## Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
2,2,4-Trimethylpentane	540-84-1	Min. 99.0 (GC)	Not available.	Not available.

## Section III. Hazards Identification

Acute Health Effects	Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Not available. <b>DEVELOPMENTAL TOXICITY</b> : Not available. There is no known effect from chronic exposure to this product. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

## Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. IMMEDIATELY flush eyes with running water for at least 15 minutes. Keeping eyelids open. COLD water may be used. DO NOT use an eye ointment. Flush eyes with running water for a minimum of 15 minutes, occasionally lifting the upper eyelids. Seek medical attention. Treat symptomatically and supportively.
Skin Contact	After contact with skin, wash immediately with plenty of water. Gently and thorough wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. COLD water may be used. Cover the irritated skin with an emollient. Seek medical attention. Treat symptomatically and supportively. Wash any contaminated clothing before reusing.
Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform artificial respiration. Seek medical attention. Treat symptomatically and supportively.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt, or waistband. If the victim is not breathing, administer artificial respiration. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Seek immediate medical attention and, if possible, show the chemical label. Treat symptomatically and supportively.

## Section V. Fire and Explosion Data

Flammability	Flammable.	Auto-Ignition	315°C (599°F)
Flash Points	-12°C (10.4°F).	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ).		
Fire Hazards	Reactive with strong oxidizers. Vapors may travel to source of ignition and flash back. Closed containers may explode from heat of a fire. Highly flammable in presence of open flames and sparks, of heat.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. No additional information is available regarding the risks of explosion.		

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Emergency phone number (800) 424-9300

Fire Fighting Media  
and Instructions

Flammable liquid.  
SMALL FIRE: Use DRY chemicals, CO<sub>2</sub>, alcohol foam or water spray.  
LARGE FIRE: Use alcohol foam, water spray or fog.

**Section VI. Accidental Release Measures**Spill Cleanup  
Instructions

Flammable liquid. Harmful material. Irritating material.  
Keep away from heat and sources of ignition. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal.

**Section VII. Handling and Storage**Handling and Storage  
Information

FLAMMABLE. HARMFUL. IRRITANT. Do not breathe gas, fumes, vapor or spray.  
Always store away from incompatible compounds such as oxidizing agents, reducing agents.

**Section VIII. Exposure Controls/Personal Protection**

## Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.

## Personal Protection

Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.



## Exposure Limits

Not available.

**Section IX. Physical and Chemical Properties**

## Physical state @ 20°C

Colorless liquid.

## Solubility

Practically insoluble in water.  
Somewhat soluble in absolute alcohol.  
Soluble in benzene, toluene, xylene,  
chloroform ether, carbon disulfide, carbon  
tetrachloride, DMF and oils, except castrol  
oil.  
Miscible with acetone, heptane.

## Specific Gravity

0.69

## Molecular Weight

114.23

## Partition Coefficient

Not available.

## Boiling Point

99°C (210.2°F)

## Vapor Pressure

41 mm Hg @ 21°C

## Melting Point

-107°C (-160.6°F)

## Vapor Density

Not available.

## Refractive Index

1.39 @ 20°C

## Volatility

Not available.

## Critical Temperature

Not available.

## Odor

Odor of gasoline.

## Viscosity

Not available.

## Taste

Not available.

**Section X. Stability and Reactivity Data**

## Stability

This material is stable if stored under proper conditions. (See Section VII for instructions)

## Conditions of Instability

Avoid excessive heat and light.

## Incompatibilities

Reactive with oxidizing agents, reducing agents.

**Section XI. Toxicological Information**

## RTECS Number

SA3320000

## Routes of Exposure

Eye contact. Ingestion. Inhalation. Skin contact.

## Toxicity Data

Not available.

## Chronic Toxic Effects

**CARCINOGENIC EFFECTS** : Not available.  
**MUTAGENIC EFFECTS** : Not available.  
**TERATOGENIC EFFECTS** : Not available.  
**DEVELOPMENTAL TOXICITY** Not available.

There is no known effect from chronic exposure to this product. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

## Acute Toxic Effects

Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

**Section XII. Ecological Information**

Ecotoxicity Not available.

Environmental Fate Iso-octane (2,2,4-trimethylpentane) is a volatile constituent of petroleum products and natural gas. Although the compound occurs naturally, it is principally released to the environment via the manufacture, use and disposal of products associated with the petroleum and gasoline industry. Photolysis and hydrolysis of iso-octane are not expected to be important environmental fate processes in any environmental media. Based upon limited data, biodegradation of the compound may occur slowly in soil and water, but probably only where the compound has been preexposed. Volatilization of the compound from water and soil surfaces may be the most important fate process. The volatilization half-life of iso-octane from a model river 1 meter deep flowing at 1 m/sec with a wind speed of 3 m/sec has been estimated to be 3.1 hrs. The Koc value of iso-octane indicates that it will not be very mobile in soil and may partition from the water column to suspended solids and sediments in water. The estimated bioconcentration factor indicates that bioconcentration may be important in aquatic organisms. The most important fate process for this compound in air may be its reaction with photochemically produced hydroxyl radicals. This reaction has an estimated half-life of 4.4 days. The most probable route of human exposure to iso-octane is by inhalation. Both general population and occupational exposure to this compound are likely.

**Section XIII. Disposal Considerations**

Waste Disposal Recycle to process, if possible. Consult your local or regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state, and local regulations when disposing of the substance.

**Section XIV. Transport Information**

DOT Classification DOT CLASS 3: Flammable liquid.

PIN Number UN1262

Proper Shipping Name Octanes

Packing Group (PG) II

DOT Pictograms

**Section XV. Other Regulatory Information and Pictograms**

TSCA Chemical Inventory (EPA) This compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list.

WHMIS Classification (Canada) WHMIS CLASS B-2: Flammable liquid with a flash point lower than 35°C (100°F).

EINECS Number (EEC) 208-759-1

EEC Risk Statements R11- Highly flammable.  
R18- In use, may form flammable/explosive vapor-air mixture.  
R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.  
R36/37/38- Irritating to eyes, respiratory system and skin.

Japanese Regulatory Data Not available.

**Section XVI. Other Information**

**Version 1.0**  
**Validated on 4/14/1999.**  
**Printed 3/11/2005.**

**Notice to Reader**

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.